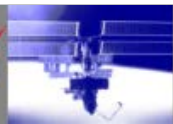


NASA Payloads Philosophy/Process Update TST and PTDR

MPTP Face to Face – September 2016

Nancy Horvath
Crew Training Coordinator
(256)961-1177
Nancy.Horvath@nasa.gov

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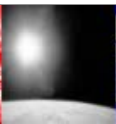
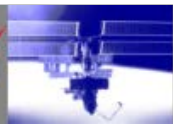


Recent update to NASA processes



NASA has re-evaluated and updated two of our crew training processes:

- ◆ Training Strategy Team (TST) process – group that determines best training method per payload
- ◆ Payload Training Dry Run (PTDR) process – event that certifies instructor and training material are ready





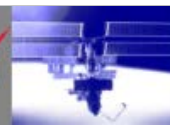
Update to TST Process

TST old process

- ◆ TST was required for every payload
- ◆ Face to Face or telecom (usually telecom)
- ◆ Required participants: PD, Astronaut Office, Operations Lead, CTC, and Displays Team

TST new process

- ◆ Depending on payload crew interfaces/tasks, some will not require a TST
- ◆ Criteria to determine if TST is required was added to SOP (see next chart)
- ◆ Participants did not change
- ◆ Crew Training Criteria did not change, see backup for criteria.

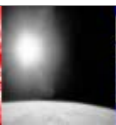
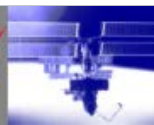


Update to TST Process – TST Criteria



Criteria is used to determine if and how a TST will be conducted:

- ◆ Payloads requiring the crew to perform complex tasks will always require a TST, either face to face or by telecom.
- ◆ During the course of PD, Ops Lead, and CTC coordination, it will be clear that some payloads do not meet the criteria for any crew training since they have little or no crew interaction. A TST will not be required for these payload types. Examples of these payload types are:
 - ✧ External payloads with no crew interaction and other payloads that have no crew tasks or crew interaction.
 - ✧ Payloads who have minor/minimal crew tasks requiring only common skills and based on the crew training criteria, no training is required.
- ◆ The CTC and Ops Lead will identify these payloads as “no training required” and obtain PD concurrence that they have no desire or requirement to train the crew. The CTC will notify the Astronaut Office for their awareness that an assessment was done resulting in no training requirement.



Update to PTDR Process

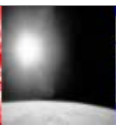
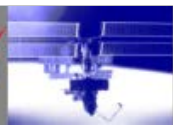


PTDR old process

- ◆ PTDR required for all new lessons
- ◆ Delta PTDR required for revised lessons
- ◆ Astronaut Office representative required at all PTDRs

PTDR new process

- ◆ PTDR may not be required in some cases
- ◆ Addition of ITDR
- ◆ Astronaut Office participation varies depending on the type of dry-run

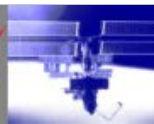


Update to PTDR Process – Scheduling



Updated to add scheduling flexibility, and reduce the time spent on date/time negotiation:

- ◆ CTC working with the Ops Lead will determine a location, date, and time for the PTDR that meets the PD requirements. Other required participants will be notified via calendar invitation sent by CTC.
- ◆ Astronaut Office provides the student test subject as needed. If a representative from the Astronaut Office is not available at the agreed/proposed time, then the Astronaut Office shall provide a qualified and agreed-to surrogate.
- ◆ Ops Lead and PD ensure the necessary facilities and hardware are available and scheduled for the PTDR.

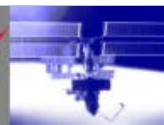


Update to PTDR Process - ITDR



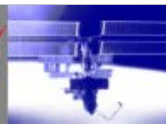
In some cases, when the PDs teams have experienced instructors who have successfully trained previous payloads, a PTDR for ground training will not be required. Instead, an Internal Training Dry Run (ITDR) will be conducted.

- ◆ ITDR is discussed and agreed upon during a TST.
- ◆ ITDRs can be conducted at PD chosen locations and will not require Astronaut Office support. The ITDR student can be a member of the PD team or if the Payload Developer chooses, they may request the ITDR student be an Astronaut Office representative, Ops Lead, or other POIF representative.
- ◆ Examples of lessons where an ITDR would be appropriate:
 - ◆ Payloads that have similar tasks as other certified lessons for the Payload Developer (example, a new HRF Ultrasound payload). The lesson is similar and the instructor has been certified on one of the similar payloads. The ITDR assures the flow of the lesson and provides the correct lesson duration.
 - ◆ A payload lesson that is a subset of a systems/med ops lesson where the lesson and instructor were certified by the system/med ops process. The ITDR for the payload lesson would assure the flow and provide the correct lesson duration. (Example, HRF Phlebotomy lesson)
 - ◆ Additional tasks are added to a currently certified lesson where there are only content and/or minor hardware changes and the instructor does not change. ITDR will assure lesson flow and lesson duration (Example: Payload Rack Joint Research Lesson).
- ◆ PD teams will coordinate the ITDR with the Ops Lead / CTC. The Ops Lead may participate in the ITDR. The PD team provides their lesson plan, courseware, and prerequisite materials to the Ops Lead for review and comments.
- ◆ Results of the ITDR will be documented on the ITDR Form and provided to the CTC prior to training. CTC will post the ITDR Form on the CTC SharePoint page.
- ◆ The CTC will document the ITDR results, as required, in the payload training repository, training plan, and crew schedules.





Backup





Update to TST Process – Training Criteria

This is the criteria was developed during the training reduction exercise in 2014. It is now part of our SOP.

When a TST is conducted, the TST will use the following Criteria to determine whether any training is required and if so, the best method for training.

◆ Ground Crew Training Criteria:

- ✦ Payload operations require a special skill that must be practiced under guidance from a qualified instructor (example: phlebotomy, ultrasounds, animal handling).
- ✦ Emergency & Safety related critical tasks that when not done properly could injure crew or result in crew safety concerns.
- ✦ Critical, complicated, or tricky tasks that when not done properly could damage payload hardware or result in critical or irreplaceable loss of science or living samples/organisms.
 - ✧ Something that can't easily be shown by video.
 - ✧ Requires hand-on / muscle memory training.

◆ On-Board Training (OBT) Criteria:

- ✦ Payload that requires no special crew skills that require muscle memory or that must be practiced but training just before ops would result in the crew being more efficient.
- ✦ Ground training would be less than 1 hour; done months from ops; and has no outstanding aspects that would help the crewmember to recall the payload.
- ✦ Crew task has crewmember manipulating hardware or performing a task that is hard to describe in procedures but relatively simple to perform given a video example of how to do it.

◆ No Crew Training Required:

- ✦ Payload hardware is simple/intuitive to operate by following procedures.
- ✦ Demonstration of skills is not necessary or has no unique skills.
- ✦ Payload has very little crew interface.

